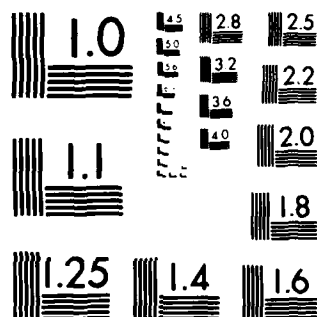


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ROYAL AIRCRAFT ESTABLISHMENT

Library Bibliography 383

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**LIST OF RAE TRANSLATIONS ISSUED
DURING THE PERIOD
1 MARCH 1983 - 31 MARCH 1984**

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LIST OF RAE TRANSLATIONS ISSUED DURING THE PERIOD
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SUMMARY

This list covers all RAE translations published from 1 March 1983 to 31 March 1984 and follows Library Bibliography 381. Previous lists have been issued in Library Bibliographies 243, 249, 254, 261, 283, 313, 319, 324, 330, 353, 360, 366, 369, 373, 380 and 381.

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LIST OF TRANSLATIONS AND SUMMARIES IN NUMERICAL ORDER

2093 COMMERCIAL-IN-CONFIDENCE

2094 COMMERCIAL-IN-CONFIDENCE

2097 THE OPTICAL DETECTION OF AIR TARGETS AND ITS DEPENDENCE ON ENVIRONMENTAL, TARGET AND OBSERVATIONAL PARAMETERS FOR GROUND-TO-AIR AND AIR-TO-AIR OBSERVATIONS
 H-E. Hoffmann
 BMVg-FBWT 81-12 (W. Germany)

During the period 1962 to 1973, a series of outdoor tests on the visibility of aircraft was undertaken in co-operation with the Bundeswehr. The main purpose of the programme was to determine the effects of various environmental, target and observation parameters on their maximum detection and recognition ranges. The environmental parameters considered were the degree of turbidity of the atmosphere, the background, direction of observation, aircraft height and brightness; the target parameters were their size and colour and observations were made with the naked eye and binoculars. The standard target aircraft used during the tests was a DO27 painted dark green. Although the observations were made from the ground, the results can be used to give air-to-air observation range if required.

2098 RELATIONSHIP BETWEEN THE GLASS TRANSITION TEMPERATURE AND THE CHEMICAL STRUCTURE OF POLYMERS
 R. Becker
Faserforschung und Textiltechnik, 29, 6, pp 361-385 (1978)

Predominantly from an empirical point of view a survey is provided on the semi-quantitative and quantitative relationships between glass temperature and chemical structure of polymers and between the relationships of the basic parameters affecting the glass temperature. The calculation of T_g by the structure-related increment method based on the principle of additivity of the properties of constituting elements is discussed in detail.

2101 CATAPHORETIC DEPOSITION OF DISPERSIONS OF PHENOL FORMALDEHYDE OLIGOMERS FROM CONCENTRATED ELECTROLYTE SOLUTIONS
 V.M. Polyakova
 Yu.F. Deinega
 L.N. Aleksandrova
 L.A. Sirota
 A.I. Gavrilyuk
Ukrainskii Khimicheskii Zhurnal, 48, 4, 379-383 (1982)

The use of a surfactant to increase the metallic content of electrolyte depositions of phenol formaldehyde oligomers is described and a detailed analysis is given of the electro-chemical interactions. Under suitable pH conditions stable suspensions can be maintained and cathodic coatings containing an average of 20-90% by weight of metal can be obtained.

2102 EXTRUSION - STATE OF THE ART AND DEVELOPMENT
(REVIEW PAPER)
Z. Metallkunde, 73, 7, pp 411-419 (1982)

M. Bauser
E. Tuschy

Extrusion procedures are described that are in current use in industry for the production of rods, wires, sections and tubes. Progress on the theory of extrusion, of development of extrudable materials and of preventing specific extrusion defects is discussed. Microelectronics and improved sensors allow more effective production with consistent high quality. Trends in development of machines, tooling and procedures are outlined and problems of material and shaping technique development are discussed.

2104 THE PROBLEMS OF PROTECTION AGAINST OPTICAL RADIATION
Ann. Ist Super. Santa, 16, p.443-476

M. Di Pofi
E. Righi

This paper considers the damaging effects on man of electro-magnetic radiation in the visual and near-visual parts of the spectrum. There are two main danger areas, first with regard to the burning effects on the unprotected skin and secondly with regard to effects on the unprotected eye, leading to retinal burns and even blindness.

The damaging effects are considered for ultra-violet, visible, infrared and laser radiation, particularly for the latter in view of the widespread use of lasers at the present time.

The questions discussed are protective measures for operatives who may be subjected to damaging radiation, and that of periodic medical checks for them. From this it is concluded that more stringent safety levels must be defined for the amounts of radiation of each kind to which operatives may be subjected, safely, during their working periods. Casual users of such equipment need to be made aware of its potentially dangerous nature and the necessary safety measures to be taken.

2105 SWEDISH DEFENCE RESEARCH ABSTRACTS 81/82-4

National Defence
Research Institute,
Stockholm

The Swedish National Defence Research Institute issues a quarterly list of unclassified Reports published by the Institute. The titles of these Reports and informative abstracts have been translated in English. This volume is the fourth issue of 1981/82. Further volumes will be translated in due course. The main topics covered are: protection - atomic, biological, chemical; ammunition and weapons; conduct of war, information and commands; vehicles and spacecraft; reliability and logistics; human factors; associated studies and their solutions; positive methods for limitation and control of armaments; psychology reports.

2106 POWDER METALLURGY FOR THE ECONOMICAL MANUFACTURE OF
AERONAUTICAL COMPONENTS IN TITANIUM ALLOY

J. Devillard

Materials et Techniques, 69, Pt.10/11, p.373-382 (1981)

The conditions required for producing reproducible sintered parts in Ti alloys are given and the four principal technologies used are outlined. An economic study is made of the PSV (pulverisation under vacuum) process which involves electron bombardment of a fast turning alloy electrode under vacuum to produce fine droplets which solidify to small spheres. A unit capable of producing 100 tonnes of powder per year is described. Processes (eg hydrostatic compression) for the densification of Ti alloy powders are considered with special reference to costs. Finally, some of the mechanical properties of PSV Ti alloys sintered by hot isostatic compression are presented.

The Swedish National Defence Research Institute issues a quarterly list of unclassified Reports published by the Institute. The titles of these Reports and informative abstracts have been translated in English. This volume is the first issue of 1982/83. Further volumes will be translated in due course. The main topics covered are: protection - atomic, biological, chemical; ammunition and weapons; conduct of war, information and commands; vehicles and spacecraft; reliability and logistics; human factors; associated studies and their solutions; positive methods for limitation and control of armaments; psychology reports.

- 2108 RELATIONSHIPS BETWEEN THE GLASS TRANSITION, THERMODYNAMIC AND
AND MECHANICAL VALUES AS POSSIBLE SOURCES OF INFORMATION H. Batzer
CORRELATING MATERIAL PROPERTIES WITH CHEMICAL STRUCTURE Ursula T. Kreibich
Die Angewandte Makromolekulare Chemie, 105, No.1661, p.113-130 (1982)

In a recent paper the calculation of the glass transition temperature T_g of linear and crosslinked polymers from the cohesive energy E_{coh} normalised to the number of structural elements $\sum_i a_i$ capable of some degree of motion was described. In addition to this work, linear relations were found between T_g and the normalised molar heat C_p as well as the normalised molecular weight MW_{seg} of the repeating unit. Hence linear correlations follow between C_p , E_{coh} and MW_{seg} without further normalisation. So the cohesive energy, which is difficult to measure, may be determined from experimental values of the molar heat or even T_g .

By applying the above mentioned relations a correlation of thermodynamic quantities with mechanical properties was found, eg the ratio of specific cohesive energy vs. density with the torsional modulus or the yield strength of crosslinked epoxide resins at 298 K.

- 2111 THE FLOW OF AN ELECTORRHEOLOGICAL SUSPENSION IN CELLS
OF DIFFERENT GEOMETRIES R.G. Gorodkin
Elektroreol. Issled. i Pril. Minsk. pp.52-65 (1981) G.M. Glokh
I.V. Bukovich
T.A. Demidenko

Using experimental evidence and simple models the authors describe how the electro-rheological effect is modified by three different electrode configurations (spiral ribbons, coaxial cylinders, and planar electrodes at various angles) and by other parameters (water content, mixing time, temperature, operating time and storage time). They conclude that cells of variable geometry offer a useful means of regulating the electrorheological effect and that any loss of performance with life is associated with structural changes in the fluid, such as coagulation.

The section headings have been inserted by the editor to assist the reader.

2112 SWEDISH DEFENCE RESEARCH ABSTRACTS 82/83-2

National Defence
Research Institute,
Stockholm

The Swedish National Defence Research Institute issues a quarterly list of unclassified Reports published by the Institute. The titles of these Reports and informative abstracts have been translated in English. This volume is the second issue of 1982/83. Further volumes will be translated in due course. The main topics covered are: protection - atomic, biological, chemical; ammunition and weapons; conduct of war, information and commands; vehicles and spacecraft; reliability and logistics; human factors; associated studies and their solutions; positive methods for limitation and control of armaments; psychology reports.

2117 SWEDISH DEFENCE RESEARCH ABSTRACTS 1982/83-3

National Defence
Research Institute,
Stockholm

The Swedish National Defence Research Institute issues a quarterly list of unclassified Reports published by the Institute. The titles of these Reports and informative abstracts have been translated in English. This volume is the third issue of 1982/83. Further volumes will be translated in due course. The main topics covered are: protection - atomic, biological, chemical; ammunition and weapons; conduct of war, information and commands; vehicles and spacecraft; reliability and logistics; human factors; associated studies and their solutions; positive methods for limitation and control of armaments; psychology reports.

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